

REMARKS

This Amendment is responsive to the communication of November 30, 2004. Reconsideration of **claims 1-9, 12-14 and 16-19** is respectfully requested.

The Office Action

Claims 1-3, 5, 7 and 9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tung (U.S. Patent No. 5,842,297) in view of Tokunaga (U.S. Patent No. 5,375,043) and Tarne (U.S. Patent No. 6,443,582).

Claim 4 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Tung (U.S. Patent No. 5,842,297) in view of Tokunaga (U.S. Patent No. 5,375,043) and Tarne (U.S. Patent No. 6,443,582) and further in view of Lea (U.S. Patent Application Pub. No. US 20010038539).

Claims 6 and 8 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tung (U.S. Patent No. 5,842,297) in view of Tokunaga (U.S. Patent No. 5,375,043) and Tarne (U.S. Patent No. 6,443,582) and further in view of Yamana (U.S. Patent No. 5,418,384).

Claims 12 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gwo-Juh (U.S. Patent No. 6,164,791) in view of Kuwabara (U.S. Patent No. 6,508,564).

Claim 14 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Gwo-Juh (U.S. Patent No. 6,164,791) in view of Lea (U.S. Patent Application Pub. No. US 20010038539).

Claims 16, 18 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tarne (U.S. Patent No. 6,443,582) in view of Lea (U.S. Patent Application Pub. No. US 20010038539).

Claim 17 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Tokunaga (U.S. Patent No. 5,375,043).

Teleconference with the Examiner

Applicants gratefully acknowledged an opportunity to discuss the merits of the case with the Examiner on November 19, 2004 for which the Applicants thank the Examiner. Applicants amended the claims as it was suggested by the Examiner and

discussed during the teleconference. It is the Applicants belief that the amendments to the claims do not require any additional search or examination and the claims are now placed in the condition for allowance.

Claims 1-9 Distinguish over Cited References

Claim 1 calls for among other elements: discrete microstructures arranged on pre-selected areas of a curved surface within the wave guide, said microstructures interacting with light in the wave guide to scatter at least a portion of the light out of the wave guide in a pattern, the pattern being determined by a prespecified arrangement of the microstructures and comprises of a series of localized light events, each light event being associated with a respective arrangement of microstructures.

Tung discloses a luminant sign comprising a base including a pair of opposing castings and an image plate. The illuminators are disposed on the base. The front and rear faces of the image plate have a number of display areas 42 defined by peripheral grooves 43 of some pictures or words which are to be presented. Each display area has reflective surfaces 44 formed therein. (Col. 3, lines 19-23.) The light is reflected by the reflective surfaces 44 and is sent directly outside to be viewed through the display areas.

Tokunaga is directed to a backlight unit suitable for lighting an LCD. A lighting unit comprises a light guide plate and a plurality of LEDs. The light guide plate 1 includes a reflective surface 1a having a multiplicity of grooves positioned on a planar surface. (Col. 2, lines 26-29.) The light guide plate 1 includes a pair of confronting side edges 1c each having a couple of small holes 1b intended to receive light emitting diodes 2a-2d. (Col. 2, lines 41-44.) Two pairs of LEDs are positioned in the holes opposing one another on the confronting sides.

Tarne discloses, in Figs. 5&6, a lens with a substantially planar back surface 65 that has a plurality of reflective stepped faces 71 that are fully circumferential. (Col. 3, lines 61-65.) The light enters the lens at the outer radial edge and travels radially inwardly. The light strikes the reflective face and is reflected out axially outwardly.

The present application is directed to a light wave guide, which has microstructures positioned on a bottom element. The bottom element has a lower planar surface and a curved upper surface. The microstructures are positioned on the

curved upper surface of bottom element within the light guide and arranged in pre-defined local groups. Light strikes the microstructures and is reflected out in a desired pattern, predetermined by the arrangement of microstructures, to define a series of symbols.

None of the references, taken singularly or in combination, discloses or suggests a light including a curved surface within the light guide, which curved surface includes the microstructures positioned in a certain localized pre-specified way to ensure the light striking the curved surface to be outputted as a series of particular predefined symbols.

It is therefore respectfully submitted that **claim 1 and dependent claims 2-9** distinguish patentably and unobviously over Tung, Tokunaga and Tame.

Claims 12-14 Distinguish over Cited References

Claim 12 calls for among other elements: a plurality of microstructures grouped selectively about the bottom surface, said plurality of microstructures cooperating with the bottom surface to scatter at least a portion of light injected from the associated light source, the scattered light exiting the wave guide through the top surface, wherein the scattered light forms a pre-selected light output pattern viewable outside the wave guide, the pre-selected light output pattern including a predetermined sequence of localized light events which sequence forms a human recognizable symbol combination.

It is alleged in the Office Action that **Gwo-Juh** discloses the light scattered by the microstructures forming a definite preselected light output pattern. Applicants are directed to Figure 13 and col. 1, lines 44-49. Applicants respectfully traverse Examiner's interpretation of Gwo-Juh. To establish a prima facie obviousness, the prior art must teach or suggest all the claim limitations. Applicants respectfully submit Gwo-Juh neither teaches nor suggests creating defined preselected light output patterns recognizable by a human as disclosed in claim 12 and supported by the specification, e.g. "walk," "don't walk," etc. Gwo-Juh discloses a backlight with a plurality of diffusing structures to form a more uniform backlight effect. (Col. 1, lines 44-48). Turning to Fig. 13, two sets of diffusing units are alternatively arranged with different angles and crossed over with each other to form a more uniform backlight effect. (Col. 3, lines 27-

30). In contrast, the present application is directed to producing a localized light to form particular patterns as called for in claim 12 and extensively explained in the specification. In fact, Gwo-Juh is teaching away from the Applicants concepts by teaching how to diffuse light. A diffused light is a light that is not concentrated or localized. (See Merriam-Webster's Collegiate Dictionary, 11ed.) By diffusing the light one cannot create a defined preselected light output, e.g. "walk," "don't walk," etc. Gwo-Juh is simply not concerned with creating a directed light output. Finally, there is no motivation or suggestion in Gwo-Juh for one skilled in the art to modify it to create a predefined light output pattern. One, skilled in the art, would be looking to Gwo-Juh to create a light diffuser and not predefined localized light outputs.

Kuwabara discloses a light source for an LCD display including LEDs arranged on one side of a light guide. Material for the light guide is selected from a translucent materials. Kuwabara is not concerned with reflecting light of microstructures to form a preselected output pattern.

Neither Gwo-Juh nor Kuwabara, taken singularly or in combination, discloses or suggests microstructures that are selectively pre-arranged to produce localized light events forming a series of symbols which forms a human recognizable symbol combination. It is therefore respectfully submitted that **claim 12 and dependent claims 13-14** distinguish patentably and unobviously over Gwo-Juh and Kuwabara.

Claims 16 and 18-19 Distinguish over Cited References

Claim 16 calls for among other elements: a curved bottom surface, which is textured in preselected localized areas, wherein the light interacting with the textured surface is emitted from the light emissive face in a series of preselected symbols each symbol corresponding to the localized area which series of symbols are formed in a human recognizable symbol combination.

Tarne discloses, in Figs. 5&6, a substantially planar lens back surface 65 that has a plurality of reflective stepped faces 71 that are fully circumferential. (Col. 3, lines 61-65.) The reflective stepped faces are separated radially by connecting faces 72. (Col. 4, lines 8-10.) The light exits through the surface 84, which may be flat, curved or other. (Col. 4, lines 26-27.) In contrast, claim 16 calls for a curved bottom surface which

is textured in prespecified localized areas to produce localized light events which form a specific symbol combination.

Lea discloses an illumination device including a light guide with light extraction structures. The surfaces of the light extraction structures are coated with reflective material.

Neither Tarne nor Lea, taken singularly or in combination, discloses or suggests a light guide including a curved surface which includes microstructures arranged in a prespecified localized areas to produce light output as a series of symbols forming a symbol combination recognizable by a human. It is therefore respectfully submitted that **claim 16 and dependent claims 18-19** distinguish patentably and unobviously over Tarne and Lea.

Claim 17 Distinguishes over Cited References

Claim 17 calls for among other elements: an encapsulant surrounding the plurality of light producing elements and abutting the light emissive wave guide, the encapsulant comprises of a prespecified material having a refractive index which matches a refractive index of the light emissive wave guide.

Tokunaga discloses a lighting unit comprising a light guide plate and a plurality of LEDs. The light guide plate 1 includes a pair of confronting side edges 1c each having a couple of small holes 1b intended to receive light emitting diodes 2a-2d. (Col. 2, lines 41-44.) The LEDs are not encapsulated into any prespecified material. Rather, the LEDs are surrounded by air. In contrast, claim 17 calls for a separately prespecified encapsulant which is specifically disposed to surround and encompass the LEDs.

Nowhere does Tokunaga disclose or suggest an LED encapsulant as an additional prespecified element which is separate from the light guide such that the encapsulant encompasses the LEDs which encapsulant is a material selected to have refractive index matching the one of the wave guide. It is therefore respectfully submitted that **claim 17** distinguishes patentably and unobviously over Tokunaga.

CONCLUSION

For the reasons detailed above, it is respectfully submitted all claims remaining in the application (**Claims 1-9, 12-14 and 16-19**) are now in condition for allowance.

Respectfully submitted,

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1/6/05
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